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A roof safety device

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(71) Applicant(s)
Gary Raymond Donohue; Robert Selwyn Wilkin

(72) Inventor(s)
Gary Raymond Donohue; Robert Selwyn Wilkin

(74) Agent/Attorney
CULLEN and CO,GPO Box 1074,BRISBANE QLD 4001

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ABSTRACT

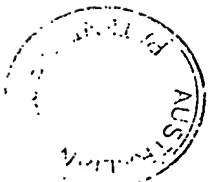
A roof safety device attachable onto the edge of roofing material and for providing a safe relocatable fixing point for a safety line for personal use, the device having a first portion which in use extends over the top of the roofing material, a second portion which in use extends across a front edge of the roofing material, a clamping portion which releasably clamps the device to the edge of the roofing material, and attachment means to allow a safety line to be attached to the device.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

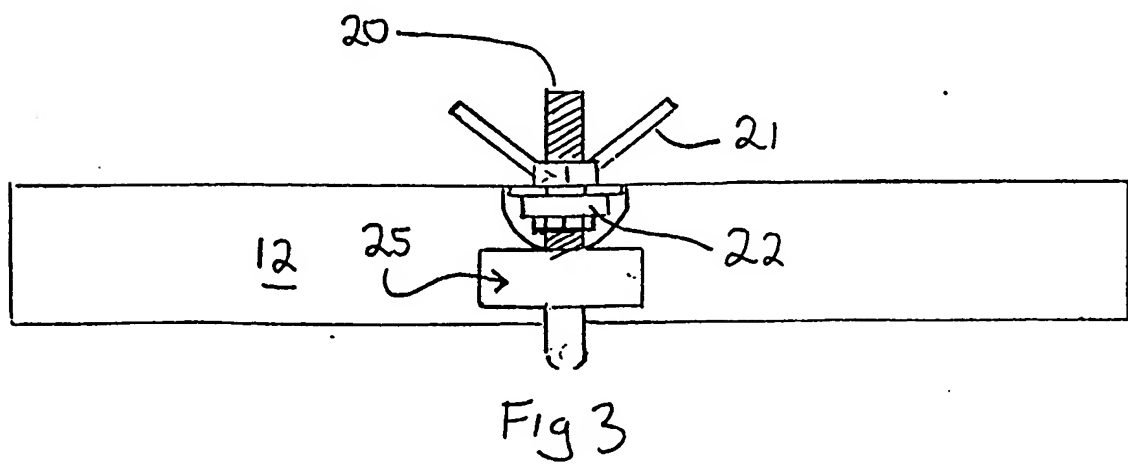
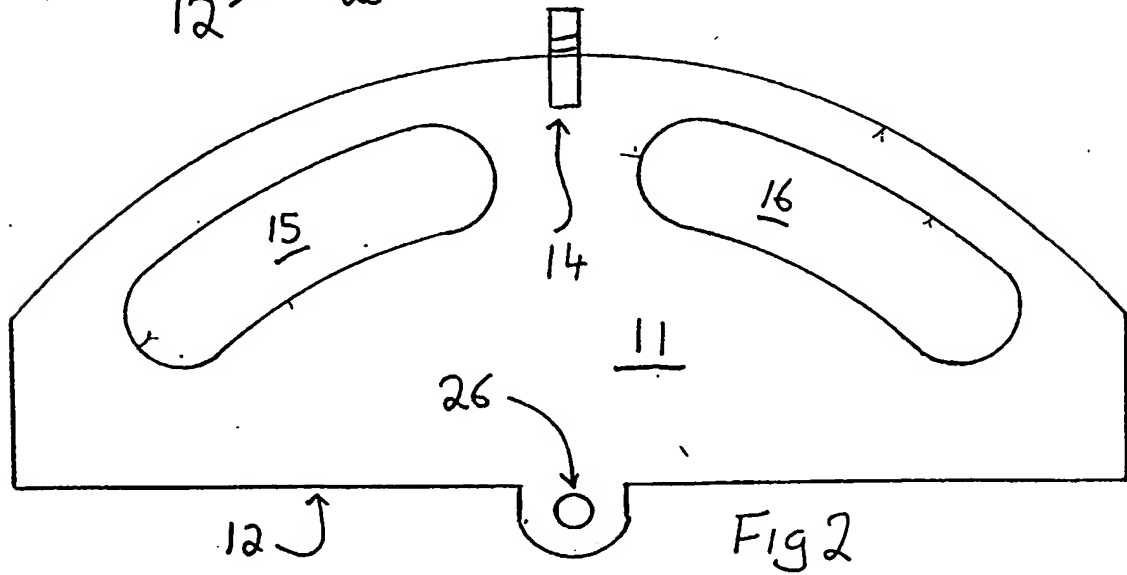
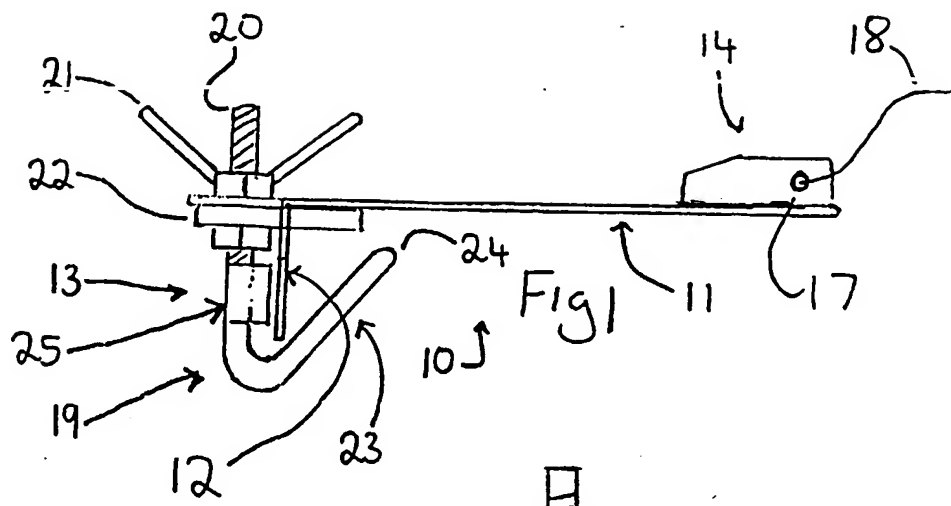
1. A roof safety device attachable onto the edge of roofing sheets or tiles and for providing a safe relocatable fixing point for a safety line for personal use, the device having a first portion which is a rigid sheet member and, which in use, sits on and extends over the top of the roofing sheets or tiles, a second portion which is a rigid sheet member and which, in use, extends across a front edge of the roofing sheets or tiles, a clamping portion which releasably clamps a first end of the first portion of the device to the roofing sheets or tiles, and attachment means on the end of the first portion opposite to said first end said attachment means providing a fixing point for a safety line at a position remote from the clamping point at the edge of the roof.
2. The roof safety device of claim 1 wherein the first portion is a rigid sheet member having a width (as hereinbefore described) of between 100 to 200mm, the second portion is a rigid sheet member having a width (as hereinbefore described) of between 20 to 50mm, the first and the second portions being substantially at right angles to each other and being rigidly fastened relative to each other, or being integrally formed.
3. The roof safety device of claim 1 or claim 2 substantially as hereinbefore described with reference to the drawings.

DATED this 13th day of September 1999

Gary Raymond DONOHUE and Robert Selwyn WILKIN
By their Patent Attorneys
CULLEN & CO.



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**COMPLETE SPECIFICATION
FOR A PETTY PATENT**

Name of Applicant: Gary Raymond DONOHUE and
Robert Selwyn WILKIN

Actual Inventor: As above

Address for Service: CULLEN & CO.,
Patent & Trade Mark Attorneys,
240 Queen Street,
Brisbane, Qld. 4000,
Australia.

Invention Title: A ROOF SAFETY DEVICE

The following statement is a full description of this invention including the best method of performing it known to us:

A ROOF SAFETY DEVICE

This invention relates to a roof safety device which is attachable over the edge of roofing (such as tiles or corrugated sheeting) and which functions to provide a safe relocatable fixing point for a safety line for
5 personal use for all types of roof work.

Roofs need to be accessed for a variety of reasons. Plumbers, handymen, painters, roof fixers, roof vent installers, TV technicians, builders, skylight installers, electricians, tilers and the like all need access to a roof.

For roofs which are considerably spaced above the ground
10 surface, roofs which have a steep pitch, slippery roofs and roofs where work needs to be done quite close to an edge of the roof, it is necessary to provide some sort of safety line to which the person can be attached.

It is known to provide roof anchors which can be in the form of brackets, hooks or eyelets which are permanently attached to the roof.
15 These brackets are spaced over the roof surface and provide accessible anchorage points for a safety line. It is also possible to install permanent anchor brackets on the corners of a roof to which a safety line can be attached.

A disadvantage with permanently attached anchoring brackets
20 is that the brackets can catch leaves, twigs and other roof debris which over time will rot and cause corrosion to the roof anchor and/or corrosion or damage to the roof. The roof brackets also provide a tripping hazard for people accessing the roof. Permanently attached brackets at the corners of the roof are unsightly and can also interfere with gutters, downpipes and leaf
25 excluders. The brackets can also not be repositioned, and are often placed underneath the gutter or on the fascia board which means that the person has to lean over to attach the safety line which in itself presents a hazardous situation.

The present invention is directed to a relocatable safety device
30 which can be fixed over the edge of a roof tile or corrugated roofing or other type of roofing material and which can be easily repositioned. The safety device, by being attached to the edge of the roofing material, is more easy to

clamp in place and a safety line can be attached with less danger as is the case with brackets which are mounted on the fascia board or underneath the roof gutters.

It is an object of the invention to provide a roof safety device
5 which may overcome at least some of the abovementioned disadvantages or provide the public with a useful or commercial choice.

In one form, the invention resides in a roof safety device attachable onto the edge of roofing material and for providing a safe relocatable fixing point for a safety line for personal use, the device having a
10 first portion which in use extends over the top of the roofing material, a second portion which in use extends across a front edge of the roofing material, a clamping portion which releasably clamps the device to the edge of the roofing material, and attachment means to allow a safety line to be attached to the device.

15 The above configuration provides a safe and easily relocatable roof device to which a safety line can be clipped or otherwise attached.

The safety device is attachable onto the edge of roofing material and this is usually the edge of the roof which is closest to the fascia board. That is, the roof safety device does not need to be attached to the
20 fascia board itself, roof gutters, soffits, or any other part of the roof apart from the roof tiles or roofing sheets.

The device has a first portion which extends over the top of the roofing material. This first portion can be a plate which extends from the front edge of the roofing material and over the top of the roofing material. The size
25 of the plate can vary as can its shape but it should be sufficient to prevent the device from being ripped off the roofing material. In practice, the plate extends between 100 to 200 or more millimetres over the top of the roofing material. Although larger plates could be used, the roof safety device should also be made as compact as possible to allow it to be easily carried by the
30 person accessing the roof and without the device becoming too unwieldy or too heavy.

The plate is typically formed from steel or other good rigid

material which will hold the weight of a person via the safety line. The plate can be flat and can have cut-out portions which can function to reduce the weight of the plate and which can also function to provide hand grips to allow the plate to be easily gripped or to allow the plate to be hooked onto a belt hook. Of course, if the device will be used for corrugated roofs only or for roofs having a consistent profile, the plate can be profiled to compliment the profile of the roof.

The second portion of the device in use extends across the front edge of the roofing material this normally being the edge where the roofing material meets the fascia board and the roof gutter. The front edge can also comprise a plate which is suitably a metal plate. In a preferred form, the first portion and the second portion are integrally formed from a single sheet of metal which is bent at right angles such that the second portion is substantially at right angles to the first portion. The width of the second portion should be greater than the thickness of the roofing material such that the second portion can abut against the front edge of the roofing material.

The length of the safety device can again vary to suit but it is found that a length of between 200 to 400mm provides a device which on the one hand is fairly easy to take up onto the roof and on the other hand provides a good safe clamping action.

The safety device has a clamping portion which releasably clamps the device to the edge of the roofing material. The clamping portion typically has two clamping members between which the edge of the roofing material (i.e. the edge of a tile or corrugated sheet) can pass. The clamping members can then be clamped together to clamp the device to the roof material. Various types of clamping members are envisaged and in one form of the invention, the clamping portion has one movable clamping member and one fixed clamping member.

In one form of the invention, the fixed clamping member is the underside of the first portion. The movable clamping member can comprise a flat bar, rod or other type of member which can be loosened and then clamped against the roofing material.

The clamping portion may comprise a number of different movable clamping members to accommodate different roof types. For instance, the movable clamping member may comprise a clamping bar to clamp corrugated material, and a clamping hook to clamp against a roof tile.

5 It is preferred that both forms of clamping members are provided on the same device such that the device can be used on various types of roofs.

An embodiment of the invention will be described with reference to the following drawings in which

Figure 1 is a side view of a clamping device according to an
10 embodiment of the invention.

Figure 2 is a top plan view of the device of Figure 1 but without the clamping nut.

Figure 3 is a rear view of the clamping device of Figures 1 and
2.

15 Referring to all the figures together, there is shown a roof safety device 10 which has a first portion in the form of a flat metal plate 11 which extends over the top of roofing material (i.e. a roof tile or corrugated sheet), a second portion again in the form of a metal plate 12 which extends over the front edge of the roofing material, a clamping portion 13 which releasably
20 clamps the device to the edge of roofing material, and attachment means 14 to allow a safety line to be attached to the device.

Device 10 in the embodiment is formed from a mild steel plate having a thickness of between 2 to 5mm. The mild steel plate is bent at right angles to form plates 11 and 12. As illustrated in Figure 2, plate 11 is of
25 generally semi-circular design and has a length of 300mm, and a widest portion of 125mm. It should be appreciated that these sizes are for illustrative purposes only. Two cut-out portions 15, 16 are provided in plate 11. The cut-out portions provide convenient hand grips to allow a person to grip the device while climbing a ladder, and also provide convenient attachment points
30 to allow a number of the devices to be attached to a hook on a waistbelt.

The width of plate 11 is defined as being between opening 26 and attachment means 14 and can be between 100 to 200mm. The width of



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plate 12 is defined as being between the right angle join between plates 11 and 12, and the longitudinal free edge of plate 12, and this can be between 20 to 50mm.

The attachment means 14 in the embodiment is a steel flat bar



which is welded to the front of plate 11 and which has a fixing aperture 17 to allow a safety line member 18 to be attached to the roof safety device 10.

The clamping portion in the embodiment comprises a number of parts. Clamping portion 13 comprises a hook-shaped bolt 19 having an upper threaded portion 20 to which a wing nut 21 is threadingly coupled. Slidingly attached to bolt 19 is a metal flat bar 22 which forms part of the clamping portion. As wing nut 21 is loosened, bolt 19 drops downwardly and a gap is formed between bar 22 and the undersurface of plate 11. When this gap is sufficient to accommodate the edge of a corrugated sheet, the device can be slid over the edge of the sheet such that plate 11 extends over the top of the corrugated sheet, and the edge of the corrugated sheet abuts against the inside wall of plate 12 and the edge extends into the gap formed between bar 22 and the underside of plate 11. Wing nut 21 can then be tightened to raise bar 22 until it securely clamps against the edge of the corrugated sheet. At this stage, the safety device is securely clamped to the edge of the roofing sheet and a safety line member can then be attached. It is noted that attachment means 14 is now spaced away from the edge of the roof and it is considered safer to attach a safety line 18 to attachment means 14 than in conventional systems where a person has to lean over the edge of the roof to attach the safety line to a bracket.

The hook portion 23 of bolt 19 is used when the roofing sheet is a roof tile. For roof tiles, bar 22 may not be entirely suitable. For roof tiles, wing nut 21 is again loosened to drop down bolt 19 until the spacing between the free end 24 of bolt 19 is sufficiently spaced from the underside of plate 11 to accommodate a thicker roof tile. The roof tile can then be slid between end 24 and the underneath of plate 11 until the front edge of the roof tile abuts against plate 12. Wing nut 21 can then be tightened until the device is securely clamped to the roof tile. The reason for the particular hook-shaped bolt design is to accommodate the small front lip which is present on the bottom wall of roof tiles. The end 24 of the hook-shaped bolt 19 extends behind the lip and clamps against the bottom of the roof tile and does not damage the relatively fragile lip with the large clamping forces placed on the

roof tile.

To prevent the hook-shaped bolt 19 from rotating upon rotation of wing nut 25, a stop member 25 is provided which is in the form of an extending lug welded to the bolt and which strikes against plate 12 to prevent rotation of the hook bolt. (The hook bolt should not rotate as rotation may cause either clamping bar 22 or end 24 to not fully clamp against the bottom of the roofing sheet.

Roof bolt 19 passes through an opening 26 better illustrated in Figure 2.

The roof safety device provides a safe relocatable fixing point for a safety line for personal use and on virtually all types of roof work. The device is lighter, has a simple fixing, is easy to manufacture, is user friendly, is more compact for on-site use, and has a stronger fixing arrangement.

Once in place, a safety line is securely fastened to the device and to the user. The user walks away from the safety device and over the peak of the roof and is securely fastened via the line to the safety device. The safety device can be readily unclamped and re-clamped on any part of the peripheral edge of the roof.

It should be appreciated that various other changes and modifications can be made to the embodiment described without departing from the spirit and scope of the invention as claimed.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A roof safety device attachable onto the edge of roofing sheets or tiles and for providing a safe relocatable fixing point for a safety line for personal use, the device having a first portion which is a rigid sheet member and, which in use, sits on and extends over the top of the roofing sheets or tiles, a second portion which is a rigid sheet member and which, in use, extends across a front edge of the roofing sheets or tiles, a clamping portion which releasably clamps a first end of the first portion of the device to the roofing sheets or tiles, and attachment means on the end of the first portion opposite to said first end said attachment means providing a fixing point for a safety line at a position remote from the clamping point at the edge of the roof.
2. The roof safety device of claim 1 wherein the first portion is a rigid sheet member having a width (as hereinbefore described) of between 100 to 200mm, the second portion is a rigid sheet member having a width (as hereinbefore described) of between 20 to 50mm, the first and the second portions being substantially at right angles to each other and being rigidly fastened relative to each other, or being integrally formed.
3. The roof safety device of claim 1 or claim 2 substantially as hereinbefore described with reference to the drawings.

DATED this 13th day of September 1999

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